

AMENDMENTS TO THE SPECIFICATION

1. Please replace paragraph 13 with the following:

The system and methods for detecting an object represent a significant improvement over conventional systems and methods. In particular, the system varies its detection sensitivity based ~~on~~ on elapsed travel time of the light pulse to detect objects at relatively large distances. Further, by varying the detection sensitivity, the known system can detect objects through fog.

2. Please replace paragraph 36 as follows:

Reflective facets 44 utilize the principle of TIR to reflect light received from aspheric lens 40 towards reflective facets 50. Total internal reflection of the light occurs when the incident angle θ exceeds the critical angle θ_c given by the equation $\theta_c = \sin^{-1}(n_1/n_2)$ wherein n_1 is the index of ~~a~~-refraction of air and n_2 is the index of ~~a~~-refraction of the polymeric material used to construct reflector 16. In an alternate embodiment (not shown), reflective facets 44 can be metalized if the light strikes facets 44 at an angle less than the critical angle.

3. Please replace paragraph 43 as follows:

Light detector 19 is provided to generate a signal (V_R) responsive to each light pulse received by detector 19. Detector 19 may ~~comprise~~ comprise a photodiode having a 1.0 nanosecond (ns) response time. Signal (V_R) has an amplitude that is indicative of a power level of a received light pulse and is received by controller 20.

4. Please replace paragraph 56 as follows:

By decreasing the threshold ($V_{THRESH1}$) over a monitoring period, the sensitivity of system 10 is increased for detecting relatively distant objects that would have a reflection with a relatively small amplitude. Further, the sensitivity of system 10 to fog is decreased by having a relatively high threshold value for relatively small elapsed travel times (e.g., 0-500 ns) of the light pulse. It should be understood, that the threshold ($V_{THRESH1}$) could be implemented using equations different from the Equation (1). For example, ($V_{THRESH1}$) could be implemented using an equation that: (i) decreases ($V_{THRESH1}$) in a stepwise manner (with two or more steps) over time, or (ii) decreases ($V_{THRESH1}$) substantially linearly.

5. Please replace paragraph 75 as follows:

The system 10 and the methods for detecting objects according to the present invention represent a significant improvement over conventional systems and methods. In particular, system 10 varies its detection sensitivity based an on elapsed travel time of the light pulse to detect objects at relatively large distances. Further, by varying the detection sensitivity, system 10 can detect objects through fog.